

Claims

What is claimed is:

- 1 1. Apparatus for customizing and monitoring multiple interfaces,
2 and implementing enhanced fault tolerance and failure isolation features
3 comprising:
4 a controller, said controller including
5 a first interface to a pair of master sources;
6 a second interface to a plurality of target interfaces;
7 a third interface for a plurality of predefined controller control signals;
8 a first multiplexer coupled between said pair of master sources and
9 said second interface to said plurality of target interfaces;
10 a pair of second multiplexers coupled between said second interface
11 to said plurality of target interfaces and a respective one of said pair of
12 master sources;
13 a pair of redundant selector functions for coupling a select signal to
14 said first multiplexer for selecting one of said plurality of target interfaces;
15 and
16 a pair of redundant ATTENTION monitor functions for monitoring
17 ATTENTION signals for each of said plurality of target interfaces.
- 1 2. Apparatus as recited in claim 1 wherein the multiple interfaces
2 include multiple IEEE 1149.1 standard joint test access group (JTAG)
3 interfaces.
- 1 3. Apparatus as recited in claim 1 wherein said pair of master
2 sources includes a pair of service processors.
- 1 4. Apparatus as recited in claim 1 wherein said plurality of target
2 interfaces include a plurality of joint test access group (JTAG) interfaces.
- 1 5. Apparatus as recited in claim 1 wherein said plurality of
2 predefined control signals include a master control signal for defining a
3 master of said pairs of redundant selector and ATTENTION monitor
4 functions.

1 6. Apparatus as recited in claim 1 wherein said plurality of
2 predefined control signals include a reset control signal for resetting a
3 second controller.

1 7. Apparatus as recited in claim 1 wherein said plurality of
2 predefined control signals include an isolate control signal for isolating a
3 second controller from said master sources.

1 8. Apparatus as recited in claim 1 wherein said plurality of
2 predefined control signals include a dual configuration control signal for
3 providing interconnecting signals between a pair of controllers or providing
4 internal interconnecting signals between said pair of redundant functions.

1 9. Apparatus as recited in claim 1 wherein said plurality of
2 predefined control signals include an external master configuration control
3 signal for defining a master of said redundant functions or of a pair of
4 controllers.

1 10. Apparatus as recited in claim 1 wherein said plurality of
2 predefined control signals include a priority configuration control signal for
3 resolving a master between said redundant functions or between a pair of
4 controllers.

1 11. Apparatus as recited in claim 1 wherein said master sources
2 include a pair of service processors; and wherein said first interface to said
3 pair of master sources include a plurality of select signals for each service
4 processor.

1 12. Apparatus as recited in claim 11 wherein said plurality of
2 predefined control signals include a configuration control signal for
3 redirecting said plurality of select signals for each service processor to a
4 selected set of said target interfaces.

1 13. Apparatus as recited in claim 1 includes a pair of redundant
2 ATTENTION mask functions respectively coupled to said pair of second
3 multiplexers for individual target interface masking.

1 14. Apparatus as recited in claim 1 includes a pair of redundant
2 interface registers for encoding values for selecting said target interface,
3 each respectively coupled to a respective one of said redundant selector
4 functions.

1 15. A method for customizing and monitoring multiple interfaces
2 with a controller and implementing enhanced fault tolerance and failure
3 isolation features, said method comprising the steps:
4 connecting a first interface to a pair of master sources;
5 connecting a second interface to a plurality of target interfaces;
6 connecting a third interface to a plurality of predefined control signals;
7 providing a first multiplexer coupled between said pair of master
8 sources and said second interface to said plurality of target interfaces;
9 providing a pair of second multiplexers coupled between said second
10 interface to said plurality of target interfaces and a respective one of said
11 pair of master sources;
12 utilizing a pair of redundant selector functions for coupling a select
13 signal to said first multiplexer for selecting one of said plurality of target
14 interfaces; and
15 utilizing a pair of redundant ATTENTION monitor functions for
16 monitoring ATTENTION signals for each of said plurality of target interfaces.

1 16. A method as recited in claim 15 wherein the step of connecting
2 said third interface to said plurality of predefined control signals includes the
3 step of providing a master control signal for defining a master of said pairs of
4 redundant selector and ATTENTION monitor functions.

1 17. A method as recited in claim 15 wherein the step of connecting
2 said third interface to said plurality of predefined control signals includes the
3 step of providing an isolate control signal for providing isolation for hot
4 plugging support on said first interface and said second interface.

1 18. A method as recited in claim 15 wherein the step of connecting
2 said third interface to said plurality of predefined control signals includes the
3 step of providing a configuration control signal for redirecting a plurality of
4 select signals for each master source to a selected set of said target
5 interfaces.

1 19. A method as recited in claim 15 wherein the step of connecting
2 said third interface to said plurality of predefined control signals includes the
3 step of providing a priority configuration control signal for resolving a master
4 between said redundant functions or between a pair of controllers.

1 20. A method as recited in claim 15 includes the step of providing a
2 respective interface register respectively coupled to one of said pair of
3 redundant selector functions for encoding values for selecting said target
4 interface.